1. NAME OF SLIDE: - TINGCHIM SLIDE II

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Tingchim slide II	
3.	Location	Latitude	N 27 ^{o}.45074208’
		Longitude	E 88 ^{o}.57831328’
4.	Altitude		
5.	Geological Setting	Highly disturbed daling group of rocks.	
6.	Slide Type	Subsidence	
7.	Slide Material	Debris with huge boulders.	
8.	Average Depth (In Mts)	8m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	450m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	22500m^2	
13.	Failed Volume(M^3)	180000m^3	
14.	Damage Done	Forest, agriculture field	
15.	Age	Old	
16.	Triggers	Adverse geology, High ground/rain water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	No point, beyond human intervention	

2. NAME OF SLIDE: - TINGCHIM SLIDE III

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Tingchim slide III	
3.	Location	Latitude	N 27 ^{o}.44918495’
		Longitude	E 88 ^{o}.56609410’
4.	Altitude		
5.	Geological Setting	Adverse geology	
6.	Slide Type	Debris slide	
7.	Slide Material	Debris with boulders and fines	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	60m	
11.	Width (In Mts)	25m	
12.	Area (M^2)	1500m^2	
13.	Failed Volume(M^3)	7500m^3	
14.	Damage Done	Agriculture land, forest, houses	
15.	Age	Old	
16.	Triggers	High ground & rain water, slope, bad geology.	
17.	Likely Return Period	Dormant	
18.	Coping Mechanism	Effective drainage, Afforestation.	

3. NAME OF SLIDE: - MANGSHILA SLIDE

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Mangshila slide	
3.	Location	Latitude	N 27 ^{o}.45317238’
		Longitude	E 88 ^{o}.54025871’
4.	Altitude		
5.	Geological Setting	Highly disturbed geological formation	
6.	Slide Type	Debris slide	
7.	Slide Material	Debris with boulders & soil	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	8m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	15m	
12.	Area (M^2)	4500m^2	
13.	Failed Volume(M^3)	22500m^3	
14.	Damage Done	Agricultural land, road, houses	
15.	Age	Old	
16.	Triggers	Bad geology, high ground/rain water	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Effective drainage, retaining walls	

4. NAME OF SLIDE: - TINGCHIM SLIDE

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Tingchim slide	
3.	Location	Latitude	N 27 ^{o}.45657820’
		Longitude	E 88 ^{o}.53853194’
4.	Altitude		
5.	Geological Setting	Bad geology	
6.	Slide Type	Debris slide	
7.	Slide Material	Debris with boulders & soil	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	8m	
10.	Length (In Mts)	350m	
11.	Width (In Mts)	20m	
12.	Area (M^2)	7000m^2	
13.	Failed Volume(M^3)	35000m^3	
14.	Damage Done	Road, house, agricultural land	
15.	Age	Old	
16.	Triggers	Bad geology, steep slope, water	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Good drainage system, Effective walls.	

5. NAME OF SLIDE: - SALEM SLIDE

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Salem slide	
3.	Location	Latitude	N 27 °.54162600’
		Longitude	E 88 °.50190454’
4.	Altitude	1190 m amsl.	
5.	Geological Setting	High grade Metamorphic terrain gneissic rocks.	
6.	Slide Type	Debris fall	
7.	Slide Material	Soil & Rock fragments	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)		
10.	Length (In Mts)	426m	
11.	Width (In Mts)	130m	
12.	Area (M^2)	55380m^2	
13.	Failed Volume(M^3)	553800m^3	
14.	Damage Done	Forest	
15.	Age	Recent	
16.	Triggers	Adverse geology, slope, rainfall	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Avoid	

6. NAME OF SLIDE: - PAKEL SLIDE (TWIN SLIDES)

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Pakel slide (Twin slides)	
3.	Location	Latitude	N 27 ^{o}.55880500’
		Longitude	E 88 ^{o}.53944869’
4.	Altitude	1430 m amsl	
5.	Geological Setting	High grade Metamorphic rocks represented by high grade gneiss/schist.	
6.	Slide Type	Debris flow	
7.	Slide Material	Soil & Rock fragments	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	13m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	90m	
12.	Area (M^2)	45000m^2	
13.	Failed Volume(M^3)	450000m^3	
14.	Damage Done	Forest	
15.	Age	Recent	
16.	Triggers	Adverse geology steep slope, rainfall, ground water activities	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Avoid	

7. NAME OF SLIDE: - TINGCHIM SLIDE I

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Tingchim slide I	
3.	Location	Latitude	N 27°.45651137'
		Longitude	E 88°.57043028'
4.	Altitude		
5.	Geological Setting	Complex, geological setup within daling group of rocks.	
6.	Slide Type	Subsidence	
7.	Slide Material	Debris & soil with boulder	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	45m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	$7500m^2$	
13.	Failed Volume(M^3)	$225000m^3$	
14.	Damage Done	Agricultural land, Forest, Settlement	
15.	Age	Old	
16.	Triggers	Bad geology, High water regime	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	To live with it	

8. NAME OF SLIDE: - CHAWANG SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Chawang slide	
3.	Location	Latitude	N 27 ^{o}.44306172’
		Longitude	E 88 ^{o}.58116486’
4.	Altitude	2080 m amsl	
5.	Geological Setting	Medium grade Metamorphics, daling group of rocks.	
6.	Slide Type	Debris flow.	
7.	Slide Material	Rock/soil mix debris	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	7m	
10.	Length (In Mts)	620m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	31000m^2	
13.	Failed Volume(M^3)	155000m^3	
14.	Damage Done	Forest, Settlement, Agriculture	
15.	Age	Recent	
16.	Triggers	Adverse geology, steep slope, rain water, scouring by nala.	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Geo-Bio engineering, retaining structures, drainage etc.	

9. NAME OF SLIDE: - NAMOK KHOLA SLIDE

SL NO.	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Namok khola slide	
3.	Location	Latitude	N 27° 27' 57.5"
		Longitude	E 88° 30' 45.9"
4.	Altitude	1479 m	
5.	Geological Setting	Sericitic phyllite/ quarzite inter banding sequence with thick rock/soil mix cover.	
6.	Slide Type	Complex, fault controlled	
7.	Slide Material	Rock soil mix debris	
8.	Average Depth (In Mts)	25m	
9.	Maximum Depth (In Mts)	35m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	75m.	
12.	Area (M^2)	37500m²	
13.	Failed Volume(M^3)	937500m³	
14.	Damage Done	Road, forest, agriculture land.	
15.	Age	Old	
16.	Triggers	Weak geology, excess water	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Difficult to cope, effective drainage may help	

10. NAME OF SLIDE: - LANTHE KHOLA SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Lanthe khola slide	
3.	Location	Latitude	N 27° 30' 44.4"
		Longitude	E 88° 33' 54.8"
4.	Altitude	867 m	
5.	Geological Setting	Disturbed gneissic terrain with thick debris with boulder cover.	
6.	Slide Type	Complex	
7.	Slide Material	Boulders with debris	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	30m	
10.	Length (In Mts)	3 Km(300m)	
11.	Width (In Mts)	100m.	
12.	Area (M^2)	30000m²	
13.	Failed Volume(M^3)	450000m³	
14.	Damage Done	Road, forest, agriculture land.	
15.	Age	Old	
16.	Triggers	Weak geology (Jointed rock /sheared) excess water, steep slope, vibration.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Effective drainage, effective retaining structures, avoid, if possible	

11. NAME OF SLIDE: - MANUAL (OLD PLACE OF DISASTER)

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Manual	
3.	Location	Latitude	N 27°31.40’
		Longitude	E88°35.60’
4.	Altitude	1230m amsl	
5.	Geological Setting	Rock Soil mix debris over disturbed gneissic terrain.	
6.	Slide Type	Complex, debris flow or fall dominating	
7.	Slide Material	Debris with boulders.	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	15000m²	
13.	Failed Volume(M^3)	75000m³	
14.	Damage Done	Casualties at GREFF Camp 10/11 September 1983	
15.	Age	43 years, Struck in 1967 killing 65 GREF workers	
16.	Triggers	Weak geology, excess water	
17.	Likely Return Period	Dormant mostly	
18.	Coping Mechanism	Afforestation, Geo-Engineering, Drainage.	

12. NAME OF SLIDE: - MEYONG SLIDE

SL NO.	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Meyong slide	
3.	Location	Latitude	N 27° 31' 41.1"
		Longitude	E 88° 36' 25.4"
4.	Altitude	1444 m	
5.	Geological Setting	Favorably dipping high grade gneissic rock sequence with quartzite, thin soil cover, rocks highly jointed	
6.	Slide Type	Wedge failure	
7.	Slide Material	Debris & boulders	
8.	Average Depth (In Mts)	2m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	50m.	
12.	Area (M^2)	$7500m^2$	
13.	Failed Volume(M^3)	$15000m^3$	
14.	Damage Done	Road distance.	
15.	Age	Recent	
16.	Triggers	Steep slope, highly jointed & fractured rocks, excess water, vibration	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Geo-engineering, Bio-Engineering, rock bolts.	

13. NAME OF SLIDE: - RICHU NALA NEAR TONG

SL NO.	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Richu Nala near Tong	
3.	Location	Latitude	N 27° 32' 41.0"
		Longitude	E 88° 37' 45.7"
4.	Altitude	1439 m	
5.	Geological Setting	Boulders and Soil mixed huge size.	
6.	Slide Type	Complex	
7.	Slide Material	Debris/soil with boulders	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	250m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	$12500m^2$	
13.	Failed Volume(M^3)	$125000m^3$	
14.	Damage Done	Road	
15.	Age	Very old	
16.	Triggers	Highly jointed rocks, debris overburden of rock & soil on both abutment & scouring by active water	
17.	Likely Return Period	Active	
18.	Coping Mechanism		

14. NAME OF SLIDE: - CHANDEY KHOLA SLIDE

SL NO.	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Chadey khola slide	
3.	Location	Latitude	N 27° 29' 05.1"
		Longitude	E 88° 31' 43.2"
4.	Altitude	826 m	
5.	Geological Setting	Quartzite phyllite	
6.	Slide Type	Rotational	
7.	Slide Material	Debris – Soil cover	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	1.5m	
11.	Width (In Mts)	500ft.(152.4m)	
12.	Area (M^2)	228.6m^2	
13.	Failed Volume(M^3)	3429m^3	
14.	Damage Done	Road strike, overburden material, boulders	
15.	Age	30 years	
16.	Triggers	Hydrology, weak geology, Slope Failure.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Sausage, high walls bio-engineering etc.	

15. NAME OF SLIDE: - RANGRANG SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Rangrang slide	
3.	Location	Latitude	N 27° 27' 57.5"
		Longitude	E 88° 30' 45.9"
4.	Altitude	1050 m	
5.	Geological Setting	Quartzite/phyllite inter band	
6.	Slide Type	Planner on the catchment of Nalas main tributary	
7.	Slide Material	Loose overburden mass with rock slide oriented along the slope	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	1.5km (1500m)	
11.	Width (In Mts)	300m.	
12.	Area (M^2)	450000m²	
13.	Failed Volume(M^3)	13500000m³	
14.	Damage Done	Forest	
15.	Age	Old	
16.	Triggers	Hydrology, weak geology, Forest load	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Drainage, Rock bolts, Bio-engineering, Geo-engineering.	

16. NAME OF SLIDE: - PHENSONG SLIDE

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Phensong slide	
3.	Location	Latitude	N 27 ^{o} 26’ 20.84”
		Longitude	E 88 ^{o} 36’ 40.64”
4.	Altitude	1560 m amsl	
5.	Geological Setting	Medium grade Metamorphic rocks represented by Daling sequence	
6.	Slide Type	Subsidence	
7.	Slide Material	Debris with boulders and soil	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	50000m^2	
13.	Failed Volume(M^3)	750000m^3	
14.	Damage Done	Road highway, settlements, agricultural fields	
15.	Age	Very old	
16.	Triggers	Adverse geology ground water & vehicular vibration	
17.	Likely Return Period	Active	
18.	Coping Mechanism	To avoid	

17. NAME OF SLIDE: - SEVEN SISTERS SLIDE

SL. NO	PARTICULARS	COMMENTS	
1.	District	North Sikkim	
2.	Name Of The Slide	Seven Sisters slide	
3.	Location	Latitude	N 27 ^{o} 26’ 23.21”
		Longitude	E 88 ^{o}35’ 34.54”
4.	Altitude	1520 m amsl	
5.	Geological Setting	Medium grade Metamorphic rocks represented by daling group of rocks.	
6.	Slide Type	Debris flow	
7.	Slide Material	Rock soil mix debris.	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	7m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	40m	
12.	Area (M^2)	$6000m^2$	
13.	Failed Volume(M^3)	$30000m^3$	
14.	Damage Done	Road, forest cover.	
15.	Age	Recent	
16.	Triggers	Adverse geology, steep slope, vehicular traffic vibration.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope dressing, retaining structures drainage.	

1. NAME OF THE SLIDE: - 4TH MILE BHASME

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	4th mile Bhasme	
3.	Location	Latitude	N 27^0 11.410
		Longitude	E 88^0 34.828
4.	Altitude	462m	
5.	Geological Setting	Failed slope forming material, no bedrock exposures	
6.	Slide Type	Complex	
7.	Slide Material	Rock/ soil mix debris. Boulders of different dimension	
8.	Average Depth (In Mts)	25m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	120m	
12.	Area (M^2)	24000m^2	
13.	Failed Volume(M^3)	600000m^3	
14.	Damage Done	Road, Agriculture, Forest, Habitation	
15.	Age	Old	
16.	Triggers	Toe erosion, adverse geology	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, Road alignment	

2. NAME OF THE SLIDE: - BENG SLIDE (ALONG NALA)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Beng slide (along nala)	
3.	Location	Latitude	N 27° 16.005'
		Longitude	E 88° 29.137'
4.	Altitude	1119m	
5.	Geological Setting	Quartzite/phyllite, interbanding sequence down slope dipping thin soil cover. Highly jointed rocks fall/topple	
6.	Slide Type	Planner- debris slide	
7.	Slide Material	Rock/ soil mix debris. Boulders of different dimension with fine	
8.	Average Depth (In Mts)	3m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	50m	
11.	Width (In Mts)	10m	
12.	Area (M^2)	$500m^2$	
13.	Failed Volume(M^3)	$1500m^3$	
14.	Damage Done	Forest/agriculture land	
15.	Age	Recent	
16.	Triggers	Surface water, adverse geology-toe cutting.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Toe protection, sausage gabions. Nala traning	

3. NAME OF THE SLIDE: - BORDANG SLIDE ON RANGPO – SINGTAM ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Bordang slide on Rangpo- Singtam road	
3.	Location	Latitude	N 27° 12.459'
		Longitude	E 88° 29.359'
4.	Altitude	488m	
5.	Geological Setting	Daling formation, sheared rock fragments Steep slope	
6.	Slide Type	Complex	
7.	Slide Material	Phyllite & quartzite rock fragments with rock flour & soil	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	25m	
10.	Length (In Mts)	700m	
11.	Width (In Mts)	500m	
12.	Area (M^2)	350000m^2	
13.	Failed Volume(M^3)	5250000m^3	
14.	Damage Done	N H 31 A	
15.	Age	40 years	
16.	Triggers	Adverse geology, steep slope	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Effective drainage, rock bolting, check dams, retrain structures, slope dressing.	

4. NAME OF THE SLIDE: - DIKLING KHOLA SLIDE (RIGHT)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Dikling khola slide (Right)	
3.	Location	Latitude	N 27^0 13.120
		Longitude	E 88^0 34.379
4.	Altitude	913m	
5.	Geological Setting	Phyllitic terrain, pulverized/sheared Seri cite phyllite	
6.	Slide Type	Translational	
7.	Slide Material	Rock soil mix material	
8.	Average Depth (In Mts)	25m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	300m	
12.	Area (M^2)	60000m^2	
13.	Failed Volume(M^3)	1500000m^3	
14.	Damage Done	Road, forest, Pachak village	
15.	Age	Old	
16.	Triggers	Steep slope, toe erosion, ground water, sheared slope farming material	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, slope dressing, drainage improvement, and retraining structures.	

5. NAME OF THE SLIDE: - GANTEY, WEST PENDAM ALONG-SINGTAM-PENDAM ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Gantey, West Pendam along-Singtam-Pendam road	
3.	Location	Latitude	N 27° 12.709'
		Longitude	E 88° 30.771'
4.	Altitude	1120m	
5.	Geological Setting	Daling formation, alternating, sequence of thin quartzite, Sericite & Chlorite as bedrock. At the location on bedrock.	
6.	Slide Type	massive subsidence & rotational	
7.	Slide Material	Mixture of huge boulders, rock fragments and soil	
8.	Average Depth (In Mts)	At the body portion=100 meters	
9.	Maximum Depth (In Mts)	150m	
10.	Length (In Mts)	Over 1000m	
11.	Width (In Mts)	450m	
12.	Area (M^2)	150000m	
13.	Failed Volume(M^3)		
14.	Damage Done	Road, agricultural land, forest, habitation	
15.	Age	Old	
16.	Triggers	Excessive Ground water thick slope material	
17.	Likely Return Period	Considering size of subsidence, no return estimate	
18.	Coping Mechanism	Effective drainage system, avoidance of wet cultivation and rock bolting	

6. NAME OF THE SLIDE: - GURUNG KHOLA SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Gurung Khola Slide	
3.	Location	Latitude	N 27° 12.839
		Longitude	E 88° 34.839
4.	Altitude	999m	
5.	Geological Setting	Well foliated sequence of ferruginous sheared phyllites with quartzite	
6.	Slide Type	Translation	
7.	Slide Material	Rock fragments with soil	
8.	Average Depth (In Mts)	25m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	250m	
11.	Width (In Mts)	200m	
12.	Area (M^2)	$50000m^2$	
13.	Failed Volume(M^3)	$1250000m^3$	
14.	Damage Done	Road, forest	
15.	Age	Old	
16.	Triggers	Down slope dipping foliation, steep slope, toe cutting	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, rock bolting bio-stabilization.	

7. NAME OF THE SLIDE: - KHAMDONG (NEAR CHURCH)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Khamdong (Near Church)	
3.	Location	Latitude	N 27° 16.064'
		Longitude	E 88° 27.958'
4.	Altitude	1205m	
5.	Geological Setting	Quartzite with Phyllite intercalation	
6.	Slide Type	Subsidence	
7.	Slide Material	Rock boulders with different dimensions with fire	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	30m	
12.	Area (M^2)	$3000m^2$	
13.	Failed Volume(M^3)	$15000m^3$	
14.	Damage Done	Road, Agriculture, Trees	
15.	Age	Recent	
16.	Triggers	Steep slope, weak geology	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Drainage, walls	

8. NAME OF THE SLIDE: - KIT GOLAI PACHE KHANI

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Kit Golai Pache Khani	
3.	Location	Latitude	N 27^0 12.824'
		Longitude	E 88^0 36.503'
4.	Altitude	838m	
5.	Geological Setting	Sheared formation of phyllite rocks	
6.	Slide Type	Rotational	
7.	Slide Material	Sheared rock consisting of ferruginous quartzite	
8.	Average Depth (In Mts)		
9.	Maximum Depth (In Mts)		
10.	Length (In Mts)	300m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	30000m^2	
13.	Failed Volume(M^3)		
14.	Damage Done	Road, Agricultural land, Habitation, Forest	
15.	Age	Old	
16.	Triggers	Sheared rocks, ground water, Toe erosion, rock flour	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Effective drainage, slope dressing, Toe protection, retaining structure	

9. NAME OF THE SLIDE: - LOWER TUMIN SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Lower Tumin slide	
3.	Location	Latitude	N 27° 19.833'
		Longitude	E 88° 29.514'
4.	Altitude	894m	
5.	Geological Setting	Quartzite/phyllite interbanding sequence with debris cover, weak geology	
6.	Slide Type	Rotational	
7.	Slide Material	Rock boulders & debris	
8.	Average Depth (In Mts)	40m	
9.	Maximum Depth (In Mts)	60m	
10.	Length (In Mts)	750m	
11.	Width (In Mts)	75m	
12.	Area (M^2)	$56250m^2$	
13.	Failed Volume(M^3)	$2250000m^3$	
14.	Damage Done	Damage to Houses & Housing site, Road, Agriculture	
15.	Age	Old	
16.	Triggers	Steep slope, water, adverse geology, wet agriculture proactive, vibrations.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Retaining walls, Drainage, Realignment of road.	

10. NAME OF THE SLIDE: - LINKEY SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East	
2.	Name Of The Slide	Linkey slide	
3.	Location	Latitude	N 27° 15.081
		Longitude	E 88° 39.206
4.	Altitude	1424m	
5.	Geological Setting	High grade metamorphic terrain, huge blocks of rocks-moved	
6.	Slide Type	Complex, wedge type dominating	
7.	Slide Material	Boulder debris	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	65m	
10.	Length (In Mts)	1000m	
11.	Width (In Mts)	1500m	
12.	Area (M^2)	1500000m^2	
13.	Failed Volume(M^3)	75000000m^3	
14.	Damage Done	Thekabong road, houses, fields, Forest, Cardamom	
15.	Age	Perennial	
16.	Triggers	Jointed, blocky nature of bedrock	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Drainage, retraining structures Bio-engineering, changing agricultural practice	

11. NAME OF THE SLIDE: - PACHE-SAMSING SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Pache-Samsing slide	
3.	Location	Latitude	N 27° 15.034'
		Longitude	E 88° 36.921'
4.	Altitude	1320M	
5.	Geological Setting	Well bedded alternate layer of Quartzite & phyllite	
6.	Slide Type	Translational	
7.	Slide Material	Rock slabs, debris	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	30m	
10.	Length (In Mts)	400m	
11.	Width (In Mts)	110m	
12.	Area (M^2)	44000m^2	
13.	Failed Volume(M^3)	880000m^3	
14.	Damage Done	Pache-Samsing road, Agricultural land, Forest.	
15.	Age	Recent about 30 years old	
16.	Triggers	Down slope dipping Daling group of rocks.	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Rock bolting, drainage, biological stabilization	

12. NAME OF THE SLIDE: - PADAMCHEN SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Padamchen slide	
3.	Location	Latitude	N 27^0 12.041'
		Longitude	E 88^0 34.638'
4.	Altitude	964m	
5.	Geological Setting	Massive & jointed quartzite with the phyllite intercalation	
6.	Slide Type	Rotational	
7.	Slide Material	Rock fragments, soil with huge boulder	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	75m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	20000m^2	
13.	Failed Volume(M^3)	1000000m^3	
14.	Damage Done	Road, Agriculture land	
15.	Age	Old	
16.	Triggers	Adverse geology, quarrying, steep slope ground water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Rock bolting, Drainage, Retaining structures	

13. NAME OF THE SLIDE: - RALONG DEVITHAN, WEST PENDAM

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Ralong Devithan, West Pendam	
3.	Location	Latitude	N 27^0 12.965
		Longitude	E 88^0 30.756
4.	Altitude	1176m	
5.	Geological Setting	Daling group of rocks-alternating sequence of Quartzite, Chlorite & Sericite Phyllite	
6.	Slide Type	Rotational, active subsidence	
7.	Slide Material	Mix of rock frequents, soil & huge boulders	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	75m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	120m	
12.	Area (M^2)	24000m^2	
13.	Failed Volume(M^3)	1200000m^3	
14.	Damage Done	Road	
15.	Age	Old	
16.	Triggers	Ground water seepage, adverse geology(wedge failure in brittle country rock	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Drainage system, Realignment of road, retaining structures	

14. NAME OF THE SLIDE: - RICHU KHOLA

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Richu khola	
3.	Location	Latitude	N 27° 19.540'
		Longitude	E 88° 30.590'
4.	Altitude	1418m	
5.	Geological Setting	Adverse geology in quartzitic/phyllitic interbanding sequence highly disturbed and thick soil overburden	
6.	Slide Type	Subsidence	
7.	Slide Material	Debris with boulders of all dimension	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	1500m(sec Map)	
11.	Width (In Mts)	50m	
12.	Area (M^2)	75000m^2	
13.	Failed Volume(M^3)	2250000m^3	
14.	Damage Done	Forest	
15.	Age	Old	
16.	Triggers	Excessive water runoff & weak geology	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Drainage, Toe protection,	

15. NAME OF THE SLIDE: - 3RD MILE, BHASME SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	3rd mile, Bhasme slide	
3.	Location	Latitude	27° 11.279'
		Longitude	88° 33.988'
4.	Altitude	485m	
5.	Geological Setting	Daling group consisting of alternating phyllite & quartzite	
6.	Slide Type	Translational	
7.	Slide Material	Rock fragments, Rock flour, Soil	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	700m	
11.	Width (In Mts)	400m	
12.	Area (M^2)	280000m^2	
13.	Failed Volume(M^3)	8400000m^3	
14.	Damage Done	Road, Agricultural land	
15.	Age	Old	
16.	Triggers	Toe erosion, Water, Adverse, geology	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, Slope dressing, Retaining structures, Effective drainage	

16. NAME OF THE SLIDE: - TUMIN KHOLA SLIDE (UPPER TUMIN)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Tumin khola slide (Upper Tumin)	
3.	Location	Latitude	N 27° 20.018'
		Longitude	E 88° 30.490'
4.	Altitude	1491m	
5.	Geological Setting	Adverse geology, quartzite/phyllite interbands highly jointed & dislocated rocks with huge boulders	
6.	Slide Type	Complex	
7.	Slide Material	Debris with boulders of different dimensions	
8.	Average Depth (In Mts)	3000m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	75m	
11.	Width (In Mts)	1000m	
12.	Area (M^2)	75000m^2	
13.	Failed Volume(M^3)	225000000m^3	
14.	Damage Done	Trees, Road	
15.	Age	Old	
16.	Triggers	Surface runoff, Adverse geology	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Drainage, Jhora training, Walls	

17. NAME OF THE SLIDE: - 9TH MILE LOWER KAMBAL

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	9th mile Lower Kambal	
3.	Location	Latitude	N 27° 22.470'
		Longitude	E 88° 29.327'
4.	Altitude	868m	
5.	Geological Setting	Quartzite with phyllite interbands.	
6.	Slide Type	Subsidence	
7.	Slide Material	Rock boulders of various dimensions with debris	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	$10000m^2$	
13.	Failed Volume(M^3)	$150000m^3$	
14.	Damage Done	10 years old house of Santiram Bhatrai Damaged, Trees Road	
15.	Age	Old	
16.	Triggers	Weak geology, Slope, Vibration	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Road alignment, Drainage & retaining structures	

18. NAME OF THE SLIDE: - BUKHUMEY BIR, CENTRAL PANDAM KARMITHANG BLOCK

SL NO	PARTICULARS	COMMENT	
1.	District	EAST	
2.	Name Of The Slide	Bukhumey Bir, Central Pandam Karmithang Block	
3.	Location	Latitude	N 27^0 12.775
		Longitude	E 88^0 31.422
4.	Altitude	1314m	
5.	Geological Setting	Massive quartzite, with intercalation Quartz Chlorite & Sericite	
6.	Slide Type	Wedge type failure	
7.	Slide Material	Rock fragments with large boulders mixed in soil & rock flour	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	75m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	20000m^2	
13.	Failed Volume(M^3)	1000000m^3	
14.	Damage Done	Road, agriculture land, health quarters	
15.	Age	Old	
16.	Triggers	Adverse geology, ground water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Effective drainage & retaining system, rock bolting etc.	

19. NAME OF THE SLIDE: - DIKLING KHOLA SLIDE (LEFT)

SL NO	PARTICULARS	COMMENT	
1.	District	EAST	
2.	Name Of The Slide	Dikling khola slide (left)	
3.	Location	Latitude	N 27^0 13.078'
		Longitude	E 88^0 34.401'
4.	Altitude	943m	
5.	Geological Setting	Into the slope dripping phyllite with thin quartzite band	
6.	Slide Type	Rotational controlled by wedge failure	
7.	Slide Material	Rock fragment, soil & boulders	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	75m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	75m	
12.	Area (M^2)	22500m^2	
13.	Failed Volume(M^3)	675000m^3	
14.	Damage Done	Road, agriculture land	
15.	Age	Old	
16.	Triggers	Wedge failure, toe cutting by dikling khola	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, slope dressing, retaining walls	

20. NAME OF THE SLIDE: - GHOTHLANG, PACHE KHANI

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Ghothlang, Pache Khani	
3.	Location	Latitude	N 27^0 12.595
		Longitude	E 88^0 36.419
4.	Altitude	887 Meters	
5.	Geological Setting	Thick slope forming material consisting of boulders, rock fragment, Red soil	
6.	Slide Type	Rotational	
7.	Slide Material	Slope forming debris	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	400m	
11.	Width (In Mts)	75m	
12.	Area (M^2)	$30000m^2$	
13.	Failed Volume(M^3)	$600000m^3$	
14.	Damage Done	Road, Agricultural land, Forest	
15.	Age	Old	
16.	Triggers	Adverse geology & slope, poor drainage ground water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Realignment of road, Drainage, Retaining structures	

21. NAME OF THE SLIDE: - JITLANG SLIDE, RANGPO

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Jitlang slide, Rangpo	
3.	Location	Latitude	N 27° 10.621'
		Longitude	E 88° 31.272'
4.	Altitude	324	
5.	Geological Setting	Faulted, sheared Chlorite & Sericitic phyllite with quartzite intercalations	
6.	Slide Type	Complex	
7.	Slide Material	Sheared Daling group of rocks	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	75m	
10.	Length (In Mts)	750m	
11.	Width (In Mts)	1000m	
12.	Area (M^2)	750000m^2	
13.	Failed Volume(M^3)	22500000m^3	
14.	Damage Done	N H 31 A, habitation	
15.	Age	Old	
16.	Triggers	Sheared rock, sleep slope	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Effective drainage, Retaining structures, Benching, Afforestation	

22. NAME OF THE SLIDE: - KHASE SLIDE (KHAMDONG -TINTEK ROAD)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Khase slide (Khamdong-Tintek road)	
3.	Location	Latitude	N 27° 20.496'
		Longitude	E 88° 33.445'
4.	Altitude	1562m	
5.	Geological Setting	Quartzite with bands of Chloritic-Sericitic phyllitic, highly jointed rocks	
6.	Slide Type	Rock topple and complex failure	
7.	Slide Material	Rock boulders, fragments	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	30m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	120m	
12.	Area (M^2)	18000m^2	
13.	Failed Volume(M^3)	360000m^3	
14.	Damage Done	Road, Trees, Agriculture	
15.	Age	-recent-	
16.	Triggers	Water, Adverse geology, Steep slope	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope dressing, Rock-bolting-drainage, appropriate retaining structures.	

23. NAME OF THE SLIDE: - 2ND MILE, KUMREK SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	2nd mile, Kumrek slide	
3.	Location	Latitude	N 27° 11.102
		Longitude	E 88° 32.569
4.	Altitude	397m	
5.	Geological Setting	Adverse geology consisting of well foliated quartzite bands, with intercalations of phyllite	
6.	Slide Type	Complex	
7.	Slide Material	Rock fragments, Rock flour, Soil	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	100m	
10.	Length (In Mts)	1200m	
11.	Width (In Mts)	1000m	
12.	Area (M^2)	1200000m^2	
13.	Failed Volume(M^3)	60000000m^3	
14.	Damage Done	Road, Forest	
15.	Age	Old	
16.	Triggers	Adverse geology, Steep slope, Toe cutting	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, Retaining structure, Effective drainage, Slope dressing	

24. NAME OF THE SLIDE: - LOWER TINTEK MARCHAK SLIDE (5KM FROM DIKCHU TO SINGTAM)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Lower Tintek Marchak Slide(5km form Dikchu)to Singtam	
3.	Location	Latitude	N 27° 22.661'
		Longitude	E 88° 29.810'
4.	Altitude	878m	
5.	Geological Setting	Highly disturbed quartzite with phyllite intercalation.	
6.	Slide Type	Debris avalanche	
7.	Slide Material	Rock boulders of various dimensions with debris	
8.	Average Depth (In Mts)	3m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	$5000m^2$	
13.	Failed Volume(M^3)	$15000m^3$	
14.	Damage Done	Road, houses(9 houses) buried, Agriculture land,	
15.	Age	Old	
16.	Triggers	Weak geology, excusive rainfall (unmanaged drain (upside is wet farming paddy field	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Rock bolting, Drainage, appropriate retaining structure, Toe protection, change in cultivation pattern.	

25. NAME OF THE SLIDE: - NAMCHEYBONG SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Namcheybong slide	
3.	Location	Latitude	N 27° 15.360'
		Longitude	E 88° 15.870'
4.	Altitude	1029m	
5.	Geological Setting	Serecite phyllite dipping along slope with high surface, sub-surface water activity.	
6.	Slide Type	Complex: Translational type mainly	
7.	Slide Material	Degraded rocks, soil etc.	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	700mts (apporx)	
11.	Width (In Mts)	900mts	
12.	Area (M^2)	630000m^2	
13.	Failed Volume(M^3)	6300000m^3	
14.	Damage Done	Agriculture land, houses, forest, road	
15.	Age	Old	
16.	Triggers	Bedrock dipping down slope, High ground water, Steep sloppy	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Toe protection, Drainage, Cropping pattern change, Bio-Engineering, Geo-Engineering etc.	

26. NAME OF THE SLIDE: - PEGAY SLIDE, PACHEY, PAKYONG -LINKEY ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Pegay slide, Pachey, Pakyong-Linkey road	
3.	Location	Latitude	N 27° 14.818'
		Longitude	E 88° 35.542'
4.	Altitude	1441m	
5.	Geological Setting	Alternating Sericite & Quartzite dipping across the slope	
6.	Slide Type	Wedge type	
7.	Slide Material	Collapsed rock & soil debris	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	15000m^2	
13.	Failed Volume(M^3)	225000m^3	
14.	Damage Done	Pakyong-linkey road, Forest.	
15.	Age	About 30 years	
16.	Triggers	Joint failure, water(underground) Steep slope, Adverse geology	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Drainage, Slope dressing	

27. NAME OF THE SLIDE: - RANGCHANG KHOLA SLIDE (TUMIN)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	RANGCHANG KHOLA SLIDE(TUMIN)	
3.	Location	Latitude	N 27° 19.620'
		Longitude	E 88° 29.587'
4.	Altitude	860m	
5.	Geological Setting	Quartzite/phyllite interbanding	
6.	Slide Type	Rock fall	
7.	Slide Material	Rock boulders of various dimensions with debris	
8.	Average Depth (In Mts)		
9.	Maximum Depth (In Mts)		
10.	Length (In Mts)	60m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	$3000m^2$	
13.	Failed Volume(M^3)		
14.	Damage Done	Forest	
15.	Age	Recent	
16.	Triggers	Weak geology, Steep slope, Rainfall.	
17.	Likely Return Period	Recent	
18.	Coping Mechanism	No impact on habitation.	

28. NAME OF THE SLIDE: - TSOCHEN–PHERI SLIDE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Tsochen-Pheri slide	
3.	Location	Latitude	N 27° 15.745'
		Longitude	E 88° 41.689'
4.	Altitude	1464m	
5.	Geological Setting	Gneissic complex, sheared and rotated gneissic, suspected MCT	
6.	Slide Type	Complex	
7.	Slide Material	Boulder debris	
8.	Average Depth (In Mts)	70m	
9.	Maximum Depth (In Mts)	90m	
10.	Length (In Mts)	1500m	
11.	Width (In Mts)	1000m	
12.	Area (M^2)	1500000m^2	
13.	Failed Volume(M^3)	105000000m^3	
14.	Damage Done	Road cut off since 1997, Agriculture land, Habitation forest etc.	
15.	Age	1997	
16.	Triggers	Adverse geology, high water regime.	
17.	Likely Return Period	perennial	
18.	Coping Mechanism	Large scale effective, Drainage system, slope dressing, Bio-engineering, Effective civil retaining structures, Afforestation	

29. NAME OF THE SLIDE: - ZANG BUSTY SUBSIDENCE (NEAR DIKCHU)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Zang Busty Subsidence (Near Dikchu)	
3.	Location	Latitude	N 27° 23.748'
		Longitude	E 88° 31.022'
4.	Altitude	783m	
5.	Geological Setting	Quartzite with phyllite intercalation	
6.	Slide Type	Subsidence	
7.	Slide Material	Huge unstable boulders on steep slope and debris	
8.	Average Depth (In Mts)	100m	
9.	Maximum Depth (In Mts)	150m	
10.	Length (In Mts)	1000m	
11.	Width (In Mts)	1km (1000m)	
12.	Area (M^2)	$1000000m^2$	
13.	Failed Volume(M^3)	$100000000m^3$	
14.	Damage Done	Road, Agriculture, Settlement (un families) affected	
15.	Age	Old	
16.	Triggers	Unstable hope with deposit of boulders & debris ground water, lack of rim treatment at reservoir of Dikchu Dam	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Rim treatment at Dikchu Tista stage V dam site, effective drainage and retaining structures.	

30. NAME OF THE SLIDE: -7TH MILE GANGTOK – TSOMGO ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	7th mile Gangtok-Tsomgo Road	
3.	Location	Latitude	N 27° 22.124'
		Longitude	E 88° 40.409'
4.	Altitude	2630m	
5.	Geological Setting	High grade metamorphic terrain, highly disturbed banded geneis with quartz mica schist shear zone	
6.	Slide Type	Debris fall wedge type dominates	
7.	Slide Material	Mainly of boulders material with few	
8.	Average Depth (In Mts)	35m	
9.	Maximum Depth (In Mts)	40m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	120m	
12.	Area (M^2)	60000m^2	
13.	Failed Volume(M^3)	2100000m^3	
14.	Damage Done	Road	
15.	Age	Old, perennial	
16.	Triggers	Steep slope, Sheared rocks, water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Live with it or avoid it	

31. NAME OF THE SLIDE: -13TH MILE SLIDE ON J.N. ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	13th mile slide on JN Road	
3.	Location	Latitude	N 27° 22.51'
		Longitude	E 88° 41.24'
4.	Altitude	3110m	
5.	Geological Setting	Down slope dipping gneiss with thick cover of uniform size debris with boulders,	
6.	Slide Type	Complex, translational type dominating	
7.	Slide Material	Mainly of sheared gneiss almost uniform size	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	60m	
10.	Length (In Mts)	700m	
11.	Width (In Mts)	500m	
12.	Area (M^2)	350000m^2	
13.	Failed Volume(M^3)	17500000m^3	
14.	Damage Done	J.N. Road	
15.	Age	Old	
16.	Triggers	Steep slope, down slope dipping rock foliation Freeze & Thaw, Rain water	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Avoidance, Slope dressing, Rock bolting retaining structure, Geo-textile	

32. NAME OF THE SLIDE: - CANTEEN DARA, SAWA KHOLA NEAR RONGLI BRIDGE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Canteen Dara, Sawa khola near Rongli bridge	
3.	Location	Latitude	N 27° 12.7'
		Longitude	E 88° 41.35'
4.	Altitude	833m	
5.	Geological Setting	Thick slope forming material with active ground water.	
6.	Slide Type	Rotational	
7.	Slide Material	Slope forming material with boulders	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	200m	
12.	Area (M^2)	30000m^2	
13.	Failed Volume(M^3)	150000m^3	
14.	Damage Done	Road between Rongli & Rorathang/Rhenock forest	
15.	Age	About 50 years	
16.	Triggers	Adverse geology, High ground water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Drainage system, Retaining structures	

33. NAME OF THE SLIDE: -14TH MILE SLIDE ON J.N. ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	14th mile slide on JN Road	
3.	Location	Latitude	N 27° 22.50'
		Longitude	E 88° 41.60'
4.	Altitude	3146m	
5.	Geological Setting	Bounded with Garnetiferous gneiss & augen gneiss, highly jointed/sheared	
6.	Slide Type	Mainly wedge type	
7.	Slide Material	Huge boulders with 10-20% fires	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	110m	
12.	Area (M^2)	33000m^2	
13.	Failed Volume(M^3)	330000m^3	
14.	Damage Done	J.N. Road	
15.	Age	Old	
16.	Triggers	Steep slope, jointed nature of rock, vibration	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Rock bolting, Slope dressing, Drainage	

34. NAME OF THE SLIDE: - BHUTIA KHOLA, DALAPCHAND, REGLE

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Bhutia khola,Dalapchand, Regle	
3.	Location	Latitude	N 27° 11.58'
		Longitude	E 88° 40.53'
4.	Altitude	1040m	
5.	Geological Setting	Highly disturbed daling group of rocks.	
6.	Slide Type	Complex, translational dominating	
7.	Slide Material	Huge boulders with 10-20% fires	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)		
11.	Width (In Mts)	300m	
12.	Area (M^2)		
13.	Failed Volume(M^3)		
14.	Damage Done	Rongli-Dalapchand Road, Forest, Cardamom	
15.	Age	Old	
16.	Triggers	Adverse geology, High ground water	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Effective drainage system, retaining structures Afforestation.	

35. NAME OF THE SLIDE: - DOKSING ON RHENOCK – RONGLI ROAD

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Doksing on Rhenock-Rongli road	
3.	Location	Latitude	N 27° 11.27'
		Longitude	E 88° 8.10"
4.	Altitude	1172m	
5.	Geological Setting	Adverse geology of Daling groups of rocks	
6.	Slide Type	Mainly wedge type	
7.	Slide Material	Rock fragments with 10-20% fines	
8.	Average Depth (In Mts)	25m	
9.	Maximum Depth (In Mts)	30m	
10.	Length (In Mts)	2000m	
11.	Width (In Mts)	100-150m not the work portion	
12.	Area (M^2)	200000m^2	
13.	Failed Volume(M^3)	5000000m^3	
14.	Damage Done	Rongli-Rhenock Road	
15.	Age	5-6 years old	
16.	Triggers	Sleep slope, Fractured nature of rocks	
17.	Likely Return Period	Perennial	
18.	Coping Mechanism	Avoidance or with massive protective works	

36. NAME OF THE SLIDE: - KYONGSLA SLIDE ON JN ROAD (15th MILE)

SL NO	PARTICULARS	COMMENT	
1.	District	East Sikkim	
2.	Name Of The Slide	Kyongsla slide on JN Road (15th mile)	
3.	Location	Latitude	N 27° 22.136'
		Longitude	E 88° 42.36'
4.	Altitude	3173m	
5.	Geological Setting	Jointed gneisses within shear zone	
6.	Slide Type	Block & wedge failure type	
7.	Slide Material	Huge boulders with 10-20% fires	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	130m	
11.	Width (In Mts)	40m	
12.	Area (M^2)	$5200m^2$	
13.	Failed Volume(M^3)	$52000m^3$	
14.	Damage Done	JN Road	
15.	Age	Recent	
16.	Triggers	Steep slope, jointed/sheared rock vibrations.	
17.	Likely Return Period	Perennial unless corrected	
18.	Coping Mechanism	Trigger slide to stabilized it, Rock bolting, Retaining walls/in-set walls	

1. NAME OF SLIDE: - ZOOM PHATAK

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Zoom Phatak	
3.	Location	Latitude	N 27^0 08.733’
		Longitude	E 88^0 15.686’
4.	Altitude	1230 m amsl	
5.	Geological Setting	Sheared Phyllite/Quartzite interbands with rock/soil/mix overburden, Shear zone	
6.	Slide Type	Rotational	
7.	Slide Material	Rock soil mix materials.	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	150m	
12.	Area (M^2)	22500m^2	
13.	Failed Volume(M^3)	675000m^3	
14.	Damage Done	Agricultural land	
15.	Age	Since 1992	
16.	Triggers	Strike slip faulting, Weak geology, Ground water/rain water, vibration.	
17.	Likely Return Period	Active.	
18.	Coping Mechanism	Slope dressing, Geo-engineering.	

2. NAME OF SLIDE: - 1km FROM BARA SAMDONG TOWARDS SRIBADAM

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	1km from Bara Samdong towards Sribadam	
3.	Location	Latitude	N 27^0 13.695’
		Longitude	E 88^0 13.180’
4.	Altitude	1753 m amsl	
5.	Geological Setting	Gneissic rocks, Soil rock Mix cover, highly jointed rock-foliation N20 E-S20W, 30^oNW	
6.	Slide Type	Rotational	
7.	Slide Material	Rock soil mix	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	$10000m^2$	
13.	Failed Volume(M^3)	$100000m^3$	
14.	Damage Done	Cardamom field, Forest	
15.	Age	20 years	
16.	Triggers	Water movements, highly jointed rocks, soil cover.	
17.	Likely Return Period	Creep at present.	
18.	Coping Mechanism	Drainage, Geo-engineering and Afforestation.	

3. NAME OF SLIDE: - 2km NAYA BAZAR SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	2km Naya Bazar slide	
3.	Location	Latitude	N 27^0 07.782'
		Longitude	E 88^0 15.467'
4.	Altitude	405 m amsl	
5.	Geological Setting	Sheared, rocks due to thrust/fault environment, highly disturbed zone	
6.	Slide Type	Rotational	
7.	Slide Material	Mix of all types & sizes of rock frequents with hardly any soil	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	200m	
11.	Width (In Mts)	270m	
12.	Area (M^2)	54000m^2	
13.	Failed Volume(M^3)	1080000m^3	
14.	Damage Done	Road & forest cover	
15.	Age	Old (Dormant)	
16.	Triggers	Toe cutting, vibration	
17.	Likely Return Period		
18.	Coping Mechanism	River training, slope dressing.	

4. NAME OF SLIDE: - 2nd NARDANG SLIDE BETWEEN GUNRUKEY & NORDANG (100m DOWNSTREAM FROM RANGIT NHPC DAM)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	2nd Nardang slide between Gunrukey & Nordang (100m downstream from Rangit NHPC Dam)	
3.	Location	Latitude	N 27^0 17.464'
		Longitude	E 88^0 17.264'
4.	Altitude	658 m amsl	
5.	Geological Setting	Disturbed phyllite/quartzite sequence with soil overburden.	
6.	Slide Type	Rotational	
7.	Slide Material	Quartzite	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	150m	
12.	Area (M^2)	22500m^2	
13.	Failed Volume(M^3)	225000m^3	
14.	Damage Done	Road disruption, Agricultural land etc.	
15.	Age	NA	
16.	Triggers	Toe cutting, disturbed rock sequence, steep slope	
17.	Likely Return Period	Active above road and dormant below road.	
18.	Coping Mechanism	Toe protection, Sausages, Afforestation.	

5. NAME OF SLIDE: - 5th MILE BUDANG SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	5th mile Budang slide	
3.	Location	Latitude	N 27^0 07.697’
		Longitude	E 88^0 13.258’
4.	Altitude	476 m amsl	
5.	Geological Setting	Well layered quartzite & phyllites intercalation on either flanks of the slide. Right flanks-N15E-S15W, dip-38oNW	
6.	Slide Type	Mainly planner	
7.	Slide Material	Collapsed rock formations, rock fragments of all sizes, tilted trees.	
8.	Average Depth (In Mts)	>50m	
9.	Maximum Depth (In Mts)	>100m	
10.	Length (In Mts)	800m	
11.	Width (In Mts)	270m	
12.	Area (M^2)	216000m^2	
13.	Failed Volume(M^3)	10800000m^3	
14.	Damage Done	Road, forest	
15.	Age	Old (Dormant)	
16.	Triggers	Adverse geology, slope parallel to foliation plane, steep slope poor drainage, vibration	
17.	Likely Return Period	With 5-10 year-after construction of the dam, if no proactive works.	
18.	Coping Mechanism	Geo-eng, slope dressing, toe protection by hydel project developer at the slide.	

6. NAME OF SLIDE: - BERFOK SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Berfok slide	
3.	Location	Latitude	N 27^0 15.840’
		Longitude	E 88^0 15.440’
4.	Altitude	900 m amsl	
5.	Geological Setting	Phyllite/Quartzite interbanding sequence wedge failure N10 E-S 10 W (E 100 s) 45o amount	
6.	Slide Type	Wedge failure-Planner	
7.	Slide Material	Rock soil mix	
8.	Average Depth (In Mts)	3m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	75m	
11.	Width (In Mts)	20m	
12.	Area (M^2)	$1500m^2$	
13.	Failed Volume(M^3)	$4500m^3$	
14.	Damage Done	Road	
15.	Age	Recent	
16.	Triggers	Sheared Rock with immature soil cover/surface run off	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Geo-engineering. Sausage, Gabbions etc.	

7. NAME OF SLIDE: - BHUTEY KHOLA SLIDE B

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Bhutey khola slide B	
3.	Location	Latitude	N 27^0 15.200'
		Longitude	E 88^0 12.950'
4.	Altitude	1436 m amsl	
5.	Geological Setting	Gneissic/Biotite rock sequence with soil cover.	
6.	Slide Type	Rotational	
7.	Slide Material	Gneissic rock boulders and transported, sandy soil.	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	30m	
10.	Length (In Mts)	75m	
11.	Width (In Mts)	50m along left abutment of Bhutey Khola.	
12.	Area (M^2)	$3750m^2$	
13.	Failed Volume(M^3)	$75000m^3$	
14.	Damage Done	Road blocked, Forest cover.	
15.	Age	15 years	
16.	Triggers	Water seepage, Toe Cutting by Bhutey Khola.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Toe protection, Low height sausage gabions Afforestation.	

8. NAME OF SLIDE: - BOJECK SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Bojeck slide	
3.	Location	Latitude	N 27^0 08.519'
		Longitude	E 88^0 10.751'
4.	Altitude	821 m amsl	
5.	Geological Setting	Highly foliated Chloride and Sericite, phyllite with their Quartzite layers, strike-N10E-S10W, dip-48NW, and faulted area. Rightflank-N15E-S15W, dip-24NW.	
6.	Slide Type	Wedge failure controlled by an active fault.	
7.	Slide Material	Sheared phyllites, ferruginous quartzite blocks & bands and failure traces deposits.	
8.	Average Depth (In Mts)	30m	
9.	Maximum Depth (In Mts)	50m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	150m	
12.	Area (M^2)	22500m^2	
13.	Failed Volume(M^3)	675000m^3	
14.	Damage Done	Agricultural land	
15.	Age	Since 1992	
16.	Triggers	Strike slip faulting, Weak geology, Ground water/rain water, vibration.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope dressing, Geo-engineering.	

9. NAME OF SLIDE: - CHACCHAKEY SLIDE (1st SLIDE NEAR LEGSHIP TOWARDS RESHI)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Chacchakey slide (1st slide near Legship Towards Reshi)	
3.	Location	Latitude	N 27^0 16.304'
		Longitude	E 88^0 16.855'
4.	Altitude	525 m amsl	
5.	Geological Setting	Favourably oriented Quartzites and phyllite interbanding sequence, strike-N20E-S20W, dip-44^0 NW	
6.	Slide Type	Planner, Rock toppling.	
7.	Slide Material	Quartzites and rock soil mix materials.	
8.	Average Depth (In Mts)	2m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	25m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	$2500m^2$	
13.	Failed Volume(M^3)	$5000m^3$	
14.	Damage Done	Road traffic disruption for long period during monsoon.	
15.	Age	20years	
16.	Triggers	High degree slope, toe cutting by Rangit river.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope dressing, Geo-engineering.	

10. NAME OF SLIDE: - GHORLEY BHIR SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Ghorley bhir slide	
3.	Location	Latitude	N 27^0 07.302'
		Longitude	E 88^0 14.290'
4.	Altitude	440 m amsl	
5.	Geological Setting	Left slide/flank high sheared ferruginous quartzite with Carb phyllite, Sericite phyllite N 5 W-S 5 E Right flank fresh Quartize, Phyllite etc. N 20 E-S 20 W 750 N W	
6.	Slide Type	Complex with displaced rock formations in the slide body.	
7.	Slide Material	Sheared displaced Quartzite's, Phyllites & slide material	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)		
10.	Length (In Mts)	400m	
11.	Width (In Mts)	330m	
12.	Area (M^2)	132000m^2	
13.	Failed Volume(M^3)	1980000m^3	
14.	Damage Done	Road, Forest	
15.	Age	Old (dormant)	
16.	Triggers	Adverse geology, steep slope, high rainfall vibration.	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Geo-engineering work, drainage, afforestation.	

11. NAME OF SLIDE: - KARTOK SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Kartok slide	
3.	Location	Latitude	N 27^0 09.631'
		Longitude	E 88^0 10.251'
4.	Altitude	1450 m amsl	
5.	Geological Setting	Alternating layers of mica schist & Quartzite slope across the rock foliation	
6.	Slide Type	Planar due to failure of joint plane	
7.	Slide Material	Collapsed slope forming material	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	80m	
11.	Width (In Mts)	30m	
12.	Area (M^2)	$2400m^2$	
13.	Failed Volume(M^3)	$24000m^3$	
14.	Damage Done	Agricultural land, Forest	
15.	Age	>5 years	
16.	Triggers	Steep slope, brittle rocks	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Since slope doesn't affect habitation or agriculture & slope being very steep, coping is not possible.	

12. NAME OF SLIDE: - LABING SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Labing slide morning	
3.	Location	Latitude	N 27^0 20.520'
		Longitude	E 88^0 14.730'
4.	Altitude	1456 m amsl	
5.	Geological Setting	Biotite schist/Gneiss, highly jointed rock slide, N40E-S40W, dip-36^0 NW.	
6.	Slide Type	Rock slide failure along joint.	
7.	Slide Material	Rock boulders with soil.	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	30m	
12.	Area (M^2)	15000m^2	
13.	Failed Volume(M^3)	75000m^3	
14.	Damage Done	Forest, Road	
15.	Age	15 years	
16.	Triggers	Highly jointed rocks, steep slope.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Sausages, Rock bolting, Afforestation.	

13. NAME OF SLIDE: - LABING SLIDE (2) TOWARDS YAKSUM FROM TASHIDING

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Labing slide (2) towards Yaksum from Tashiding	
3.	Location	Latitude	N 27^0 21.060'
		Longitude	E 88^0 14.342'
4.	Altitude	1368 m amsl	
5.	Geological Setting	Massive Gneissic bands with Biotite-schist intercalation with thin soil cover, strike-N20E-S20W, dip-55^0 NW.	
6.	Slide Type	A unique case of rock toppling or fall	
7.	Slide Material	Gneissic rock boulders with thin soil cover.	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	25m	
12.	Area (M^2)	$2500m^2$	
13.	Failed Volume(M^3)	$12500m^3$	
14.	Damage Done	Road disruption, trees.	
15.	Age	3 years	
16.	Triggers	Highly jointed rock.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Rock bolting, Low height retaining walls.	

14. NAME OF SLIDE: - LALEY KHOLA SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Laley khola slide	
3.	Location	Latitude	N 27^0 09.127'
		Longitude	E 88^0 12.312'
4.	Altitude	760 m amsl	
5.	Geological Setting	Left flank slope deposit Right flank pure quartzite underlain by Sericite and Chlorite phyllite N80W-S80E, dip-47^0NE	
6.	Slide Type	Rotational	
7.	Slide Material	Terrace material with boulders of all sizes	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	60m	
12.	Area (M^2)	$6000m^2$	
13.	Failed Volume(M^3)	$60000m^3$	
14.	Damage Done	Road, cultivated land, forest	
15.	Age	<15 years	
16.	Triggers	Weak geology, poor Drainage	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Engineering works, Toe protection.	

15. NAME OF SLIDE: - LOWER RUNGDU SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Lower Rungdu slide	
3.	Location	Latitude	N 27^0 15.857'
		Longitude	E 88^0 15.870'
4.	Altitude	850 m amsl	
5.	Geological Setting	Phyllite/Quartzite interbanding sequence soil over burden	
6.	Slide Type	Planner	
7.	Slide Material	Rock, Soil mix over burden	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	7500m^2	
13.	Failed Volume(M^3)	112500m^3	
14.	Damage Done	Agriculture land	
15.	Age	Recent	
16.	Triggers	Toe cutting, Seasonal surface run off	
17.	Likely Return Period		
18.	Coping Mechanism	Retaining structures, effective drainage, afforestation.	

16. NAME OF SLIDE: - MANGSARI SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Mangsari Slide	
3.	Location	Latitude	N 27^0 08.80'
		Longitude	E 88^0 11.575'
4.	Altitude	850 m amsl	
5.	Geological Setting	Chlorite and Sericite phyllite underlain by Quartzite, highly weather rocks.	
6.	Slide Type	Rotational	
7.	Slide Material	Pulverized Chlorite and Sericite phyllite with Quartzite boulders of all sizes.	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	50m	
12.	Area (M^2)	$5000m^2$	
13.	Failed Volume(M^3)	$50000m^3$	
14.	Damage Done	Agricultural land.	
15.	Age	10 years	
16.	Triggers	Weathered nature of slope material, foliation down dip, ground water.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Toe protection at Rani khola, slope dressing.	

17. NAME OF SLIDE: - MELLI SLIDE (BETWEEN YAKSUM & RIMBI)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Melli slide (between Yaksum & Rimbi)	
3.	Location	Latitude	N 27^0 19.878'
		Longitude	E 88^0 13.448'
4.	Altitude	1144 m amsl	
5.	Geological Setting	Fragile geological setting Quartzite/Phyllite interband with soil cover.	
6.	Slide Type	Complex	
7.	Slide Material	Rock soil mix	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	35m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	75m	
12.	Area (M^2)	11250m^2	
13.	Failed Volume(M^3)	225000m^3	
14.	Damage Done	Road destabilization, forest cover	
15.	Age	20 years	
16.	Triggers	Weak geological highly Jointed rocks	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Low height retaining walls, Rock bolting, effective drainage, afforestation.	

18. NAME OF SLIDE: - MIDDLE CHONGRANG SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Middle Chongrang Slide	
3.	Location	Latitude	N 27^0 20.791'
		Longitude	E 88^0 16.767'
4.	Altitude	1542 m amsl	
5.	Geological Setting	Gneiss with thin cover rock adversely foliated along slope.	
6.	Slide Type	Translational	
7.	Slide Material	Rock slip along with thin soil cover with trees.	
8.	Average Depth (In Mts)	2m	
9.	Maximum Depth (In Mts)	5m	
10.	Length (In Mts)	400m	
11.	Width (In Mts)	75m at road, but down below is 300m width	
12.	Area (M^2)	$30000m^2$	
13.	Failed Volume(M^3)	$60000m^3$	
14.	Damage Done	Road destabilization.	
15.	Age	Recent	
16.	Triggers	Water seepage/runoff, rock slip along foliation.	
17.	Likely Return Period	Dormant at present	
18.	Coping Mechanism	Low height walls, Drainage, rock bolting afforestation.	

19. NAME OF SLIDE: - MURDU KHOLA SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Murdu khola slide	
3.	Location	Latitude	N 27^0 21.760'
		Longitude	E 88^0 17.288'
4.	Altitude	1788 m amsl	
5.	Geological Setting	Phyllite & Quartzite, disturbed	
6.	Slide Type	Rotational	
7.	Slide Material	Failed rock & soil material	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	250m	
11.	Width (In Mts)	120m	
12.	Area (M^2)	$30000m^2$	
13.	Failed Volume(M^3)	$300000m^3$	
14.	Damage Done	Cardamom, Forest, Road	
15.	Age	10-20 years	
16.	Triggers	Adverse geology, Water, Road construction	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope dressing, drainage, afforestation.	

20. NAME OF SLIDE: - NAGDARA SLIDE (1km AHEAD OF SIKKIM ROAD JUNCTION TOWARDS RESHI)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Nagdara slide (1km ahead of Sikkim road junction towards Reshi)	
3.	Location	Latitude	N 27^0 12.429'
		Longitude	E 88^0 19.444'
4.	Altitude	538 m amsl	
5.	Geological Setting	Dolomitic terrain, dolomite with coal dolomitic boulders overburden.	
6.	Slide Type	Rotational.	
7.	Slide Material	Gondwana shales/phyllites, coal shale, dolomitic boulders.	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	75m	
12.	Area (M^2)	$7500m^2$	
13.	Failed Volume(M^3)	$75000m^3$	
14.	Damage Done	Frequent blocking of road traffic, Forest trees etc.	
15.	Age	NA	
16.	Triggers	Loose crushed materials, surface/subsurface water runoff	
17.	Likely Return Period	Active slide.	
18.	Coping Mechanism	Effective retaining structures, Afforestation.	

21. NAME OF SLIDE: - NANGYAM KHOLA SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Nangyam khola slide	
3.	Location	Latitude	N 27^0 21.559'
		Longitude	E 88^0 17.610'
4.	Altitude	1820 m amsl	
5.	Geological Setting	Phyllite with Quartzite well bedded------, rotated left side N40W-S40E towards 25^0NE, Right N70W-S70E, 14^0NNW	
6.	Slide Type	Fault controlled complex	
7.	Slide Material	Debris	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	60m	
12.	Area (M^2)	$6000m^2$	
13.	Failed Volume(M^3)	$30000m^3$	
14.	Damage Done	Road, Cardamom	
15.	Age	10 years	
16.	Triggers	Soil Collapse above the rock bed during rain fall	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope realignment, Afforestation.	

22. NAME OF SLIDE: - NAGDARA SLIDE (1st SLIDE ON HINGDAM-TASHIDING ROAD)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Nardang Slide (1st slide on Hingdam- Tashiding Road)	
3.	Location	Latitude	N 27^0 17.322'
		Longitude	E 88^0 17.150'
4.	Altitude	610 m amsl	
5.	Geological Setting	Phyllite/Quartzite disturbed tectonic zone	
6.	Slide Type	Rotational & Complex	
7.	Slide Material	Rock boulders & soil mix debris	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	200m	
12.	Area (M^2)	$30000m^2$	
13.	Failed Volume(M^3)	$300000m^3$	
14.	Damage Done	Road disruption, Agriculture land, trees	
15.	Age	5 years (more)	
16.	Triggers	Adverse geo setting, Toe cutting by Rangit river, road construction	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Toe protection, Sausages, Forest cover.	

23. NAME OF SLIDE: - NAYA BAZAR SCHOOL SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Naya Bazar School slide	
3.	Location	Latitude	N 27^0 7.945'
		Longitude	E 88^0 16.477'
4.	Altitude	394 m amsl	
5.	Geological Setting	Thrust zone, pulverized coal sand stone, limestone, phyllite, Quartzite	
6.	Slide Type	Rotational	
7.	Slide Material	Pulverized coal mixed with sheared rock fragments	
8.	Average Depth (In Mts)	25m	
9.	Maximum Depth (In Mts)	100m	
10.	Length (In Mts)	120m	
11.	Width (In Mts)	108m	
12.	Area (M^2)	$12960m^2$	
13.	Failed Volume(M^3)	$324000m^3$	
14.	Damage Done	Road, forest	
15.	Age	Old	
16.	Triggers	Thrusting, toe cutting, vehicular vibration, sheared nature of slope material	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Toe protection by river training, training walls.	

24. NAME OF SLIDE: - PAIRANI, SRIBADAM TOWARDS KALUK-2KM

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Pairani, Sribadam towards kaluk-2km	
3.	Location	Latitude	N 27^0 13.290’
		Longitude	E 88^0 12.589’
4.	Altitude	1790 m amsl	
5.	Geological Setting	Gneissic sequence and Fault zone.	
6.	Slide Type	Rotational as well as wedge failure	
7.	Slide Material	Rock/soil debris	
8.	Average Depth (In Mts)	15m	
9.	Maximum Depth (In Mts)	20m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	70m	
12.	Area (M^2)	21000m^2	
13.	Failed Volume(M^3)	315000m^3	
14.	Damage Done	Forest	
15.	Age	20 years	
16.	Triggers	Surface/sub-surface water movement, slide materials, Brittle rock, Toe cutting, vibration.	
17.	Likely Return Period	Active creep movement	
18.	Coping Mechanism	Water channelizing, geo-engineering measures, Afforestation.	

25. NAME OF SLIDE: - PECHEREK SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Pecherek Slide	
3.	Location	Latitude	N 27^0 15.609’
		Longitude	E 88^0 11.595’
4.	Altitude	1345 m amsl	
5.	Geological Setting	Gneissic rock sequence with Biotic schist intercalations/fault plane. N55W-S55E, Dip-23^0SE	
6.	Slide Type	Complex and rotational rock toppling.	
7.	Slide Material	Gneissic rocks boulders with soil cover.	
8.	Average Depth (In Mts)	40m	
9.	Maximum Depth (In Mts)	80m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	150m	
12.	Area (M^2)	75000m^2	
13.	Failed Volume(M^3)	3000000m^3	
14.	Damage Done	Road disruption, Forest cover and Agriculture land.	
15.	Age	30 years	
16.	Triggers	Weak Geology, surface/subsurface runoff, Toe cutting.	
17.	Likely Return Period	Active slide.	
18.	Coping Mechanism	Toe protection, Rock bolting, drainage, Effective drainage, in-set walls, Afforestation .	

26. NAME OF SLIDE: - PELLING SLIDE ALONG PELLING DENTAM ROAD (1/2km FROM PELLING RIDGE)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Pelling slide along Pelling Dentam road(1/2km from Pelling ridge)	
3.	Location	Latitude	N 27^0 17.935'
		Longitude	E 88^0 13.525'
4.	Altitude	1845 m amsl	
5.	Geological Setting	Jointed Gneissic rock sequence with the soil cover	
6.	Slide Type	Rock failure & planner	
7.	Slide Material	Gneissic boulders with soil	
8.	Average Depth (In Mts)	5m	
9.	Maximum Depth (In Mts)	10m	
10.	Length (In Mts)	175m	
11.	Width (In Mts)	25m	
12.	Area (M^2)	$4375m^2$	
13.	Failed Volume(M^3)	$21875m^3$	
14.	Damage Done	Vehicles & traffic disruption.	
15.	Age	5 years	
16.	Triggers	Highly jointed rock, steep slope, surface runoff	
17.	Likely Return Period	Active.	
18.	Coping Mechanism	Low height walls, sausage, Gabbions, Rock Bolting.	

27. NAME OF SLIDE: - RATMETAY SLIDE LOWER BERMIOK SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Ratmetay Slide Lower Bermiok slide	
3.	Location	Latitude	N 27^0 15.495’
		Longitude	E 88^0 15.178’
4.	Altitude	940 m amsl	
5.	Geological Setting	Phyllite with red soil over burden.	
6.	Slide Type	Planner	
7.	Slide Material	Soil with pebbles	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	100m	
11.	Width (In Mts)	25m	
12.	Area (M^2)	$2500m^2$	
13.	Failed Volume(M^3)	$25000m^3$	
14.	Damage Done	Trees, Road (Bermiok – Legship Road)	
15.	Age	NA	
16.	Triggers	Soil Collapse above the rock bed during rain fall	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Geo-engineering measures, Effective drainage.	

28. NAME OF SLIDE: - RINGZYANG SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Ringzyang slide	
3.	Location	Latitude	N 27^0 21.923'
		Longitude	E 88^0 16.929'
4.	Altitude	1763 m amsl	
5.	Geological Setting	Phyllite & Quartzite, disturbed Tectonic zone	
6.	Slide Type	Planner as well as Rotational	
7.	Slide Material	Residual debris	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)		
10.	Length (In Mts)	400m	
11.	Width (In Mts)	250m	
12.	Area (M^2)	100000m^2	
13.	Failed Volume(M^3)	1000000m^3	
14.	Damage Done	Habitation, cultivation, road.	
15.	Age	About 10 years after construction of road.	
16.	Triggers	Adverse geology, high ground, road construction. Toe cutting	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Slope dressing, realignment of road, drainage, Rock bolting	

29. NAME OF SLIDE: - SIMITHANG SLIDE

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Simithang slide	
3.	Location	Latitude	N 27^0 23.577'
		Longitude	E 88^0 17.220'
4.	Altitude	1800 m amsl	
5.	Geological Setting	Amphibolites, banded gneiss, Garnetiferous mica-schist, strike E-W, Dip Northerly.	
6.	Slide Type	Rotational	
7.	Slide Material	Debris/soil with boulders	
8.	Average Depth (In Mts)	50m	
9.	Maximum Depth (In Mts)	75m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	150m	
12.	Area (M^2)	$45000m^2$	
13.	Failed Volume(M^3)	$2250000m^3$	
14.	Damage Done	Simithang under impact, Cardamom field.	
15.	Age	50-60 years	
16.	Triggers	Adverse geology, poor Drainage.	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Toe protection, Drainage, Afforestation.	

30. NAME OF SLIDE: - TADONG SLIDE, 2km AHEAD OF KALUK TO DENTAM

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Tadong slide, 2km ahead of Kaluk to Dentam	
3.	Location	Latitude	N 27^0 14.243'
		Longitude	E 88^0 14.278'
4.	Altitude	1470 m amsl	
5.	Geological Setting	Quartzite/Phyllite interband sequence with soil cover, fault zone, contact of Quartzite with mica schist-mica schist towards BARMEK- N65 W-	
6.	Slide Type	Rotational S65E-15SE	
7.	Slide Material	Rock soil mix debris	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	30m	
10.	Length (In Mts)	500m	
11.	Width (In Mts)	100m	
12.	Area (M^2)	$50000m^2$	
13.	Failed Volume(M^3)	$1000000m^3$	
14.	Damage Done	Road, Forest, Agriculture	
15.	Age	50 years	
16.	Triggers	Fault Zone, Surface/subsurface water movement, steep slope	
17.	Likely Return Period	Active	
18.	Coping Mechanism	Effective drainage, correct retaining walls, Afforestation.	

31. NAME OF SLIDE: - TINZIRING SLIDE (AHEAD OF CHONGRAY BEFORE GERYTHANG)

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	Tinziring Slide (ahead of Chongray before Gerythang)	
3.	Location	Latitude	N 27^0 20.825'
		Longitude	E 88^0 15.900'
4.	Altitude	1425m amsl	
5.	Geological Setting	Sericite phyllite/Quartzite interbands, Jointed Strike-N20E-S20W,Dip-34^0NW	
6.	Slide Type	Rotational & Complex	
7.	Slide Material	Rock soil mix materials	
8.	Average Depth (In Mts)	10m	
9.	Maximum Depth (In Mts)	15m	
10.	Length (In Mts)	300m	
11.	Width (In Mts)	150m	
12.	Area (M^2)	45000m^2	
13.	Failed Volume(M^3)	450000m^3	
14.	Damage Done	Road sinking.	
15.	Age		
16.	Triggers	Geological formation, water runoff, Toe cutting.	
17.	Likely Return Period	Dormant at present with protective measures.	
18.	Coping Mechanism	Low height retaining walls, drainage, Toe protection.	

32. NAME OF SLIDE: - 15th MILE SLIDE (BETWEEN RESHI AND KALEJ KHOLA) 1km TO LEGSHIP

SL NO	PARTICULARS	COMMENTS	
1.	District	West Sikkim	
2.	Name Of The Slide	15th mile slide (Between Reshi and KALEJ khola) 1km to Legship	
3.	Location	Latitude	N 27^0 16.237'
		Longitude	E 88^0 17.127'
4.	Altitude	563 m amsl	
5.	Geological Setting	Quartzite/ Phyllite sequence with rock soil mix overburden.	
6.	Slide Type	Rotational (Creep)	
7.	Slide Material	Quartzite boulders, rock soil mix materials.	
8.	Average Depth (In Mts)	20m	
9.	Maximum Depth (In Mts)	25m	
10.	Length (In Mts)	150m	
11.	Width (In Mts)	200m	
12.	Area (M^2)	$30000m^2$	
13.	Failed Volume(M^3)	$600000m^3$	
14.	Damage Done	Sinking of road, Tilted trees.	
15.	Age	50 years	
16.	Triggers	Degraded slope materials, seasonal water runoff, Toe cutting.	
17.	Likely Return Period	NA	
18.	Coping Mechanism	Sausage, Gabbions, Bio-Engineering measures, Toe protection, Afforestation.	

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**NARAK- JHORA- SLIDE**.	
3.	Location	Latitude	27o 9.767'North
		Longitude	88.31o103'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**TURUNG-BIMBONG SLIDE**	
3.	Location	Latitude	27o 05.258'North
		Longitude	88º 25.886' East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**KERABARI SLIDE**	
3.	Location	Latitude	27o 05.258' North
		Longitude	88o25.886' East
			2073 ft

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**LUNGCHOK SLIDE**	
3.	Location	Latitude	27o 06.636' North
		Longitude	88o 21.905' East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**TURUK SLIDE**	
3.	Location	Latitude	27_o, 6.5'North
		Longitude	88_o 24'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**BUL SLIDE**	
3.	Location	Latitude	27_o08, 697' North
		Longitude	88_o 23, 09' East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**MANPUR KHOLA SLIDE**	
3.	Location	Latitude	
		Longitude	
			4300ft-

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**TIRI KHOLA SLIDE**	
3.	Location	Latitude	27_o 11'North
		Longitude	88_o 22'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**BANIYA KHOLA SLIDE**	
3.	Location	Latitude	27_{o} 17.5, North
		Longitude	88_{o}21'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**GUNDRUKEY NALA SLIDE**	
3.	Location	Latitude	27_{o} 17'North
		Longitude	88_{o} 17'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**PATHING SLIDE**	
3.	Location	Latitude	27_{o}18.5' North
		Longitude	88_{o}23' East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**BAGDHARA SLIDE**	
3.	Location	Latitude	27_{o}16.920'North
		Longitude	88_{o}24.878'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**NEBHAREY KHOLA KHARKA SLIDE**	
3.	Location	Latitude	27o18.425’ North
		Longitude	88o24.921’ East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**MANZING SLIDE**	
3.	Location	Latitude	27o19.720’North
		Longitude	88o27.764’East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**BAGWA SLIDE**	
3.	Location	Latitude	N27o19.810’North
		Longitude	E88o26.764’East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**SIRWANI SLIDE**	
3.	Location	Latitude	27o14’North
		Longitude	88o28.5’East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**BETGHARI SLIDE**	
3.	Location	Latitude	27_{o}12.5'North
		Longitude	88_{o}26'East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**MELLI – ROLU KHOLA SECTION**	
3.	Location	Latitude	27_{0}5 North
		Longitude	88_{0}27 ½ East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**MANDIR GATE POINT**	
3.	Location	Latitude	27.06 North
		Longitude	88 025 ½ East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**LAMBA VIR SLIDE**	
3.	Location	Latitude	27_{0}6½ 'North
		Longitude	88_{0}22½ East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**BAGWA SLIDE**	
3.	Location	Latitude	$27^0$5.75’ North
		Longitude	$88^0$21 East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**RATMATEY SLIDE**	
3.	Location	Latitude	$27^0$5’ North
		Longitude	$88^0$20’ East

SL NO	PARTICULARS	COMMENT	
1.	District	South	
2.	Name Of The Slide	**16th MILE SLIDE**	
3.	Location	Latitude	$27^0$75’ North
		Longitude	88^0 17.3’ East